

2013 BLACK BEAR BAIT STATION SURVEY RESULTS

Background

The black bear bait station survey is a technique that has been used in many states to document population trends in black bears. While it cannot be used to accurately estimate the black bear population in Maryland, it is an effective tool used to track trends in the population over time. The survey has been conducted annually in western Maryland since 1993.

Methods

Survey routes have been established throughout the occupied bear range in Maryland (Garrett, Allegany, Washington, and Frederick counties). Traditionally the survey was conducted only in Garrett and western Allegany counties (from Cumberland west). Additional survey routes have been added over the years to include areas to the east of Cumberland. In 1999 a route was added in eastern Allegany County, in 2001 a route was added to western Washington County, and in 2003 a route was added to central Frederick County. The most recent addition was added in 2009 to obtain greater survey coverage of central Washington County.

The bait station survey routes are established in black bear-occupied areas. The routes consist of bait stations placed at 0.5 mile intervals. Each station consists of three partially opened sardine cans (sardines packed in soybean oil) suspended with nylon string six to eight feet from the ground and two to three feet from the main stem of a smooth-barked tree.

Bait stations are established in mid to late July and they remain in place for eight days. The stations are then checked, removed and any activity is noted for each station. The observers must distinguish between raccoon, opossum, black bear and other wildlife activity. All stations in which black bear activity was observed are considered a 'visit' and a visitation rate is then calculated for each survey area. The total visitation rate is then calculated for the year providing a visitation index that is used to compare results between years.

Results

In 2013, a total of 15 routes were established containing 121 bait stations across Garrett County. Of these, 93 were visited by black bears yielding a visitation rate of 76.9%. In Allegany County 4 routes were established, consisting of 65 stations. There were 30 visits that reflected a 46.2% visitation rate. In Washington County, nine out of 29 stations were visited on the two established routes, yielding a visitation rate of 31.0%. The single route in Frederick County contained 21 stations: two of which were visited for a rate of 9.5%. The visitation rate for Allegany and Garrett counties combined was 66.1% (Table 1) and 56.8% across the entire survey area (Garrett, Allegany, Washington, and Frederick counties) (Table 2).

Discussion

The black bear bait station survey results continue to indicate an increasing trend in western Maryland's black bear population. It is important to note that fluctuations from one year to the next are expected, and it is the long-term trend data that is most valuable to wildlife managers. The visitation rate for the entire survey area has increased from 3.2% in 1993 to 56.8% in 2013 (Figure 1). Since this long-term survey has been implemented, routes have been added to monitor range expansion across all four western counties. Despite these additional routes in Maryland's peripheral bear range, visitation rates have continued to show an increasing trend in Maryland's bear population.

Garrett County encompasses the heart of Maryland's core bear range and the routes in this county have gone from a 3.9% visitation rate in 1993 to a 76.9% visitation rate in 2013 (Figure 2). The visitation rate for Allegany County showed a decrease from 53.8% in 2012 to 46.2% in 2013. Allegany County's visitation rates have remained noticeably higher since 2006 which is indicative of an increasing density in the black bear population throughout the county.

Maryland DNR implemented a bear hunting season in 2004. Allegany and Garrett counties together comprise Maryland's black bear harvest zone. Since that time, the majority of the black bear harvest has come from Garrett County. The combined visitation rate for these two counties increased from 62.1% in 2012 to 64.1% in 2013 (Table 1). Although the overall trend continues to increase within the harvest zone, when comparing the nine years prior to the initiation of the harvest and the last nine years coinciding with the harvest, the trend line shows a much less dramatic increase (Figure 3). This indicates that the current black bear harvest is slowing the population growth in Garrett and Allegany counties.

Washington County showed a decrease from 37.9% in 2012 to 31.0% of the sites being visited by bears in 2013. The visitation rate in Frederick County had increased from 4.8% visitation in 2012 to 9.5% in 2013. Despite the relatively young age of the routes in Washington and Frederick Counties, visitation is occurring each year and it appears that an increasing trend is starting to materialize. DNR will watch these counties closely over the next few years.

It is important to remember that a population estimate cannot be determined utilizing this survey. The visitation rate index does not calculate bear numbers, nor can it be used to extrapolate population numbers from previous estimates. Its purpose is to monitor trends in Maryland's bear population over time. This survey is proving to be especially useful in monitoring trends in the black bear population outside of Maryland's core bear range (Garrett and Allegany counties).

Table 1. Summary of Maryland black bear bait station survey routes for Garrett and Allegany counties.

Year	Period	Garrett County				Allegany County				Garret & Allegany Counties Combined			
		# Routes	# Stations	# Visits	Visitation Rate	# Routes	# Stations	# Visits	Visitation Rate	# Routes	# Stations	# Visits	Visitation Rate
1993	mid July	10	77	3	3.9%	1	20	0	0.0%	11	97	3	3.1%
1994	mid June	12	91	10	11.0%					12	91	10	11.0%
1996	late June	11	63	6	9.5%					11	63	6	9.5%
1997	mid July	16	112	14	12.5%					16	112	14	12.5%
1998	mid July	16	131	14	10.7%	1	20	4	20.0%	17	151	18	11.9%
1999	mid July	17	136	33	24.3%	4	80	6	7.5%	21	216	39	18.1%
2000	mid July	17	136	40	29.4%	4	67	0	0.0%	21	203	40	19.7%
2001	mid July	17	129	68	52.7%	4	70	2	2.9%	21	199	70	35.2%
2002	mid July	17	136	65	47.8%	4	71	4	5.6%	21	207	69	33.3%
2003	mid July	17	138	70	50.7%	4	67	2	3.0%	21	205	72	35.1%
2004	mid July	17	134	73	54.5%	4	67	4	6.0%	21	201	77	38.3%
2005	mid July	17	136	88	64.7%	4	66	0	0.0%	21	202	88	43.6%
2006	mid July	17	133	83	62.4%	4	63	14	22.2%	21	196	97	49.5%
2007	mid July	17	129	87	67.4%	4	63	10	15.9%	21	192	97	50.5%
2008	mid July	17	134	76	56.7%	4	66	17	25.8%	21	200	93	46.5%
2009	mid July	17	134	77	57.5%	4	67	15	22.4%	21	201	92	45.8%
2010	mid July	16	126	76	60.3%	4	66	21	31.8%	20	192	97	50.5%
2011	mid July	16	126	83	65.9%	4	64	28	43.8%	20	190	111	58.4%
2012	mid July	16	125	83	66.4%	4	65	35	53.8%	20	190	118	62.1%
2013	mid July	15	121	93	76.9%	4	65	30	46.2%	19	186	123	66.1%

Table 2. Summary of Maryland black bear bait station survey routes for Washington County, Frederick County, and survey-wide.

Year	Period	Washington County				Frederick County				Garrett, Allegany, Washington, & Frederick Counties Combined			
		# Routes	# Stations	# Visits	Visitation Rate	# Routes	# Stations	# Visits	Visitation Rate	# Routes	# Stations	# Visits	Visitation Rate
1993	mid July									11	97	3	3.1%
1994	mid June									12	91	10	11.0%
1996	late June									11	63	6	9.5%
1997	mid July									16	112	14	12.5%
1998	mid July									17	151	18	11.9%
1999	mid July									21	216	39	18.1%
2000	mid July									21	203	40	19.7%
2001	mid July	1	11	1	9.1%					22	210	71	33.8%
2002	mid July	1	15	6	40.0%					22	222	75	33.8%
2003	mid July	1	16	4	25.0%	2	31	0	0.0%	24	252	76	30.2%
2004	mid July	1	16	4	25.0%	2	31	0	0.0%	24	248	81	32.7%
2005	mid July	1	16	3	18.8%	1	19	1	5.3%	23	237	92	38.8%
2006	mid July	1	16	2	12.5%	1	22	0	0.0%	23	234	99	42.3%
2007	mid July	1	16	6	37.5%	1	22	0	0.0%	23	230	103	44.8%
2008	mid July	1	15	4	26.7%	1	21	3	14.3%	23	236	100	42.4%
2009	mid July	2	26	4	15.4%	1	21	2	9.5%	25	248	98	39.5%
2010	mid July	2	29	12	41.4%	1	21	2	9.5%	24	242	111	45.9%
2011	mid July	2	28	16	57.1%	1	20	3	15.0%	23	238	130	54.6%
2012	mid July	2	29	11	37.9%	1	21	1	4.8%	23	240	130	54.2%
2013	mid July	2	29	9	31.0%	1	21	2	9.5%	22	236	134	56.8%

Figure 1. Maryland black bear bait station survey results for the entire survey area (Garrett, Allegany, Washington, and Frederick counties) (1993-2013)

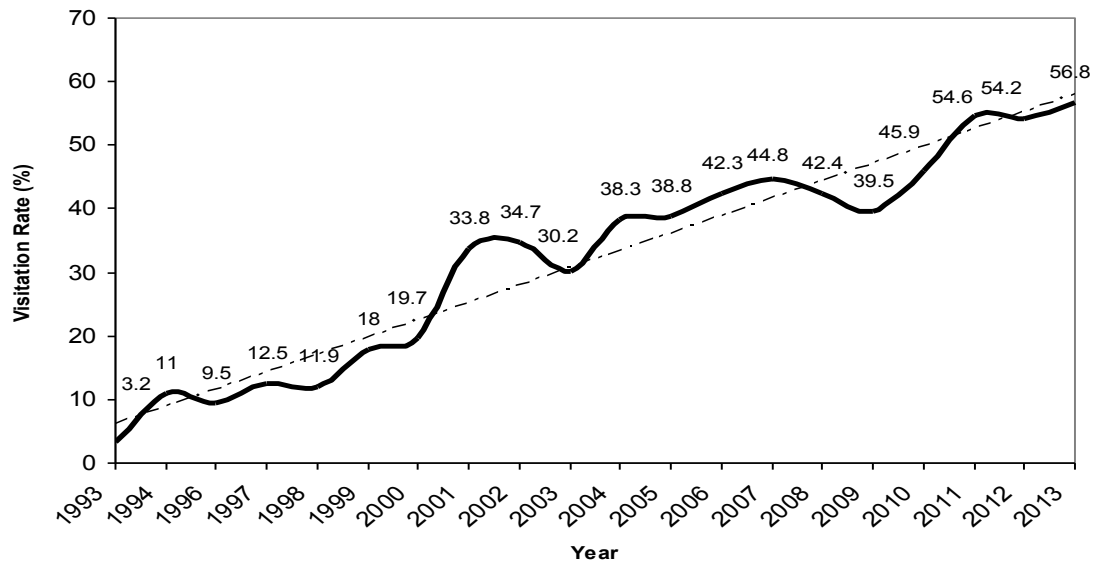


Figure 2. Maryland black bear bait station survey results for Garrett County. (1993-2013)

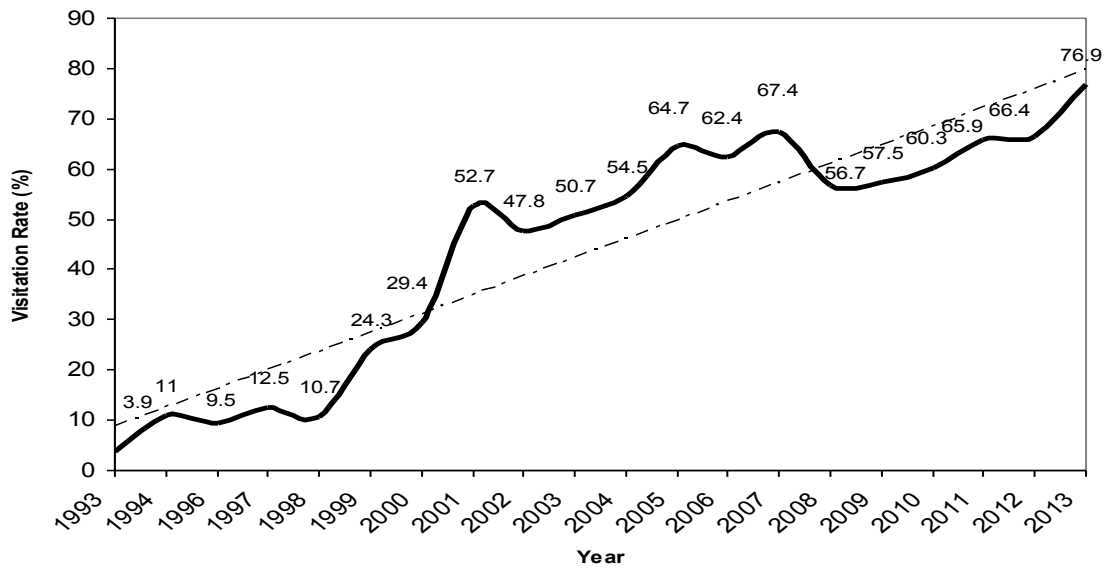


Figure 3. Maryland black bear bait station survey results within the harvest zone (Garrett & Allegany counties) split to show the nine years prior to the implementation of the harvest and the nine years coinciding with the harvest. (1996-2013)

